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May 6, 2016

Dr. Salli Dymond
Research Hydrologist
U.S. Forest Service Pacific Southwest Research Station
1731 Research Park Drive
Davis, California 95618

Dear Dr. Dymond:

Thank you very much for providing the Board of Forestry and Fire Protection's Effectiveness Monitoring Committee (EMC) with your PowerPoint presentation titled "*The Caspar Creek Experimental Watersheds Experiment Three: The influence of stand density reduction on watershed processes in the South Fork."* After the February 24th meeting and during the April 14th meeting, EMC members, staff, and the public provided comments on your study plan, which are briefly summarized in this memorandum. For brevity, these comments are summarized by general themes.

Landslide Study Opportunity

Dave Longstreth, CGS, stated that during your presentation it occurred to him that it would be beneficial to have an updated Caspar Creek landslide study conducted that utilizes existing LiDAR imagery. He reasoned that use of LiDAR, detailed field work, and previous landslide mapping work (Spittler and McKittrick 1995) will produce a more accurate and updated description of landslide features in the South Fork Caspar Creek watershed. Mr. Longstreth has produced a detailed plan titled "Caspar Creek landslide mapping study plan, Jackson Demonstration State Forest, Mendocino County, California" which has undergone review by CAL FIRE and CGS staff (attached).

Background (Pre-Project) Sub-Watershed Conditions

Stuart Farber, Co-Chair, commented that as you explained, baseline conditions within each South Fork sub-watershed are different. He commented that if possible, it would be helpful if the third experiment studies attempt to quantify whether these are very large or small differences between sub-watersheds, so reviewers can better understand the potential influence on future results. Since pre-treatment sediment and flow data have been measured in the sub-watersheds beginning in 2001, and abundant data existed to select the best control sub-watersheds to predict changes in the treated

watersheds, pre-treatment differences in sub-watershed conditions can be easily documented for the various third experiment studies as appropriate.

Rare or Large Event Monitoring

Stuart Farber, Co-Chair, commented that one important consideration in several EMC themes is attempting to measure the Forest Practice Rules (FPRs) effectiveness during rare or large events (EMC Strategic Plan Section 4.2.2). He commented that it would be helpful if the third experiment study components can include this concept, so if a large event occurs, the potential effects from such events can be measured. As an example, it would be helpful to know in Project #8 which potential erosional consequences of legacy road rehabilitation are due to chronic events, episodic rare or large events, or both. With over 50 years of discharge data, the monitoring should be able to estimate the recurrence interval for large peak flow events, if they occur, and categorize the size of the stressing storm event(s).

Bioassessment Study

Stuart Farber, Co-Chair, commented that the goal of the DFW Bioassessment Study portion of the third experiment will be to assess the biotic response to the various stand density treatments and determine the effects of contemporary forest practices on macroinvertebrate assemblages and potentially achieve portions of EMC Theme 1, Critical Question (e). He commented that it would be beneficial in the study plan to further clarify how the SWAMP protocol will be used or tested for this component of the third experiment.

Water Temperature Study

Stuart Farber, Co-Chair, commented that several EMC critical questions are associated with watercourse canopy closure and associated water temperatures [see EMC Strategic Plan Theme 1, Critical Questions (a), (b) and (d)]. He encouraged the PSW and CAL FIRE to develop a water temperature study as part of the third experiment.

Test of California's Forest Practice Rules or FPRs Plus JDSF Management Plan Standards

Peter Ribar, public, and Tom Engstrom, EMC member, commented that if the THP developed for the South Fork of Caspar Creek incorporates riparian zone protection measures that go beyond the requirements of the standard FPRs due to JDSF Management Plan requirements, then this point needs to be clarified and made abundantly clear to all those involved in the study design (prior to study implementation). They asked whether this will be a test of the FPRs, or the FPRs plus JDSF standards.

Dr. Kevin Boston, EMC member, commented that the EMC is looking for opportunities to test the effectiveness of the Road Rules, 2013 rule package requirements, and that the South Fork watershed offers many advantages for study (nested watersheds with high quality monitoring data)—if a sufficient number of crossings will be utilized as part of the THP that is prepared for the third experiment. He commented that it may be

possible to study the impacts of road segments that remain hydrologically connected in control sub-watersheds compared to those that are disconnected as per the rule requirements. Additionally, it may be a location to test alternative road treatments, from current practices to high levels of mitigation such as using alternative rock types or subgrade preparations. Response variables could include sediment production potential such as rutting, as well as suspended sediment concentrations in watercourse channels.

Silvicultural and Yarding System Questions

Matt House, EMC member, commented that the proposed analysis in the third experiment will not cover the entire range of silvicultural methods, and that a clearcut (100%) removal sub-watershed treatment should be added to the study design to evaluate contemporary measures and contemporary harvest technologies. He stated that while clearcutting impacts were studied previously in the North Fork, this harvesting occurred from 1985 to 1992 under differing FPR requirements. Additionally, Mr. House added that newer ground-based yarding methods should be tested, such as shovel logging that does not construct or use skid trails (Matzka et al. 2004).

Peter Ribar, public, commented that it may be beneficial to modify how the silvicultural system is described for sub-watersheds Sequoyah (65% reduction rate, variable retention) and Ziemer (75% reduction rate, variable retention) (Table 3 in the study plan). Since a 65% reduction rate harvest will leave more trees than are required by the standard FPRs, he suggested considering labeling this silviculture as "VR-enhanced."

THP Design and Development of an Approved Water Board Erosion Control Plan

Peter Ribar, public, asked whether JDSF staff preparing the THP for the SF Caspar Creek timber sale had considered that significant existing and potential erosion sites in the control sub-watersheds must be addressed as per 14 CCR § 923.1(e). The plan states that there will be no road decommissioning work to be completed in these basins. Current rule requirements state that RPFs are to repair controllable significant sediment sources if they are part of the THP. Discussion regarding this topic should occur with Lynn Webb and Kirk O'Dwyer, JDSF staff.

Thank you for providing input to the BOF's Effectiveness Monitoring Committee on this valuable project that will help address numerous critical questions included in our EMC Strategic Plan. Please do not hesitate to contact the authors of these comments for further clarification or discussion.

References

Matzka, P.J., B. Haupt, J. Rink, J. Saltzman, and S. Stout. 2004. Extending ground based operations into the wet season with shovel logging in the redwood region of California. Humboldt State University, Arcata, CA. 9 p.

Spittler, T.E. and M.A. McKittrick. 1995. Geologic and Geomorphic Features Related to Landsliding, North and South Forks of Caspar Creek, Mendocino County, California: California Department of Conservation, Division of Mines and Geology Open File Report OFR 95-08, scale 1:12,000.

Sincerely,

Stuart Farber

Dr. Russ Henly

Co-Chairs
BOF Effectiveness Monitoring Committee